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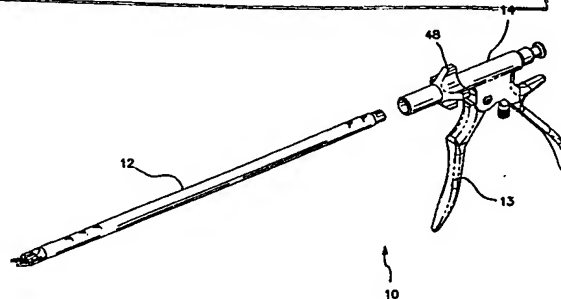
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(54) Title: CLIP APPLIER CARTRIDGE WITH INTERNAL RATCHET



(57) Abstract: A clip applier for applying a surgical clip in a patient comprising a disposable cartridge and a reusable actuating mechanism. The cartridge includes an elongate tube having a proximal end and a distal end, a pair of opposing jaw members extending outwardly from the distal end of the elongate tube, and a one-way ratchet mechanism providing a full actuating stroke. The actuating mechanism is coupled to the proximal end of the elongate tube to move the jaw members between an open position and a closed position. The ratchet mechanism may be formed from injection molded plastic. The cartridge further comprises a push member for advancing the clip into the jaw members, a biasing spring for maintaining the push member against the clip, and a drive coupling operatively connected to a sliding ratchet pawl for engaging with mating teeth formed on an inner surface of the elongate tube, wherein the ratchet pawl includes a cantilever arm that engages with the mating teeth, and wherein the drive coupling provides a central connection of the ratchet pawl allowing pivoting and improved seating of the mating teeth. A method of applying a surgical clip to an object in a patient using the clip applier of the invention includes the steps of positioning the clip applier within the patient such that the jaw members are adjacent to the object to be clipped, closing the jaw members and the clip over the object, and removing the clip applier from the patient. The method may further comprise the steps of orienting the clip applier such that the jaw members pass over the object, manipulating the jaw members to move the object to a compressed state within the jaw members, advancing the clip over the object to maintain the object in the compressed state, and retracting a feeder to allow the next clip to be fed into the jaw members.

WO 2004/008944 A2